

AMENDMENTS TO THE CLAIMS

Claims 1-24 (Cancelled)

25. (Currently amended) The method of claim 72, process of claim 24, wherein the metal of the foil material is selected from the group consisting of titanium, aluminum, stainless steel, nickel, and copper.
26. (Currently amended) The method of claim 72, process of claim 24 wherein the grit has a mesh size between 180 and 320, of about 280.
27. (Currently amended) The method of claim 72, process of claim 24 wherein forming the oxy-hydroxide layer includes applying a [[the]] caustic solution of sodium hydroxide [[has]] having a concentration of about 10-50% by weight sodium hydroxide.
28. (Currently amended) The method process of claim [[26]] 27 wherein the caustic solution of sodium hydroxide has a concentration of about 25% by weight sodium hydroxide.
29. (Currently amended) The method of claim 28, process of claim 24 wherein the temperature of the caustic solution is about 150-220°F.
30. (Currently amended) The method of claim 28, process of claim 24 wherein the temperature of the caustic solution is about 190°F.
31. (Currently amended) The method of claim 72, process of claim 24 wherein the [[dry]] sol-gel [[layer]] coating is about 10-500 nm thick.
32. (Currently amended) The method of claim 72, process of claim 24 wherein the [[dry]] sol-gel coating layer is about 100 nm thick.

33. (Currently amended) The method of claim 72, process of claim 24 wherein the sol-gel is a mixture of a zirconium alkoxide, 3-glycidoxy-propyltrimethoxysilane, glacial acetic acid, and a surfactant.

34. (Currently amended) The method of claim 72, process of claim 24 wherein the sol-gel is a mixture of zirconium n-propoxide, 3-glycidoxy-propyltrimethoxysilane, glacial acetic acid, and a surfactant.

Claim 35 (Cancelled)

Claim 36 (Cancelled)

37. (Currently amended) The method of claim 72, process of claim 24 wherein the liquid-adhesive coating is applied in a dip-coating tank.

38. (Currently amended) The method of claim 72, process of claim 24 wherein the liquid-adhesive coating is applied by spraying.

39. (Currently amended) The method of claim 72, process of claim 24 wherein the [[dry]] adhesive coating after drying has a thickness of 0.1 to 3.0 mils.

40. (Currently amended) The method of claim 72, process of claim 24 wherein the [[dry]] adhesive coating after drying has a thickness of 0.75 mils.

41. (Cancelled)

42. (Currently amended) The method of claim 72, process of claim 40 wherein acetone is used as the solvent for the adhesive.

43. (Previously presented) A continuous surface preparation process for a metal material, said process comprising:

grit blasting the metal material with a mixture of fine particles of aluminum oxide in air and water, wherein the grit has a mesh size of about 180-320;

rinsing the metal material with water to remove the grit;

subjecting the metal material to a caustic solution of sodium hydroxide wherein the caustic solution of sodium hydroxide has a concentration of about 10-50% by weight sodium hydroxide;

rinsing the metal material with water to remove the caustic solution of sodium hydroxide from the metal material;

applying a sol-gel coating to the metal material wherein the sol-gel is a mixture of a zirconium alkoxide, 3-glycidioxy-propyltrimethoxysilane, glacial acetic acid, and a surfactant;

evaporating the water portion of the sol-gel coating;

applying a liquid adhesive coating directly to the sol-gel coating on the metal material wherein the liquid adhesive coating is an epoxy-based adhesive coating including:

an epoxy material comprising about 3-35% by wt. liquid diglycidylether of bisphenol-A, about 35-60% by wt. solid diglycidylether of bisphenol-A,, about 10-30% by wt. novolac epoxy, and about 5-18% by wt. carboxy-terminated acrylonitrile butadiene rubber; and

a second curative material comprising about 0-100% by wt. 4,4'-diaminodiphenylsulfone, about 0-100% by wt. 3,3'-diaminodiphenylsulfone, and about 0-0.2% by wt. chromium octoate;

evaporating the solvent portion of the adhesive coating; and

applying a backing film to the adhesive coating, wherein the backing film is configured to prevent the adhesive coating from sticking to itself when the metal material is wound into a coil.

44. (Original) The process of Claim 43, wherein the metal material is selected from the group consisting of titanium, aluminum, stainless steel, nickel, and copper.

Claims 45-62 (Cancelled)

63. (Previously Presented) The process of Claim 43 wherein the liquid adhesive coating is applied in a dip-coating tank.

64. (Previously Presented) The process of Claim 43 wherein the liquid adhesive coating is applied by spraying.

65. (Previous Presented) The process of Claim 43 wherein acetone is used as the solvent for the adhesive.

66. (Previously Presented) The process of Claim 43 wherein the dry adhesive coating has a thickness of 0.1 to 3.0 mils.

Claims 67-71 (Cancelled)

72. (New) A method for preparing surfaces of a metal foil, the method comprising.

performing grit blasting to remove oxide from surfaces of the foil.

forming oxy-hydroxide layers on the grit-blasted surfaces;

forming a sol gel coating on the oxy-hydroxide layers; and

applying an adhesive coating on the sol gel-coating.